

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018250**Date Inspected:** 19-Nov-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Field Splice E7/E8
- B). Ventilation Access Hole, Longitudinal Stiffeners
- C). Field Splice W7/W8
- D). Field Splice W8/W9
- E). Pipe Supports

A). Field Splice E7/E8

The QAI observed the QC inspector, John Pagliero perform the fit-up inspection of the longitudinal stiffener field splices identified as WN: 7E-8E-LS1, LS2 and LS3. There were no issues noted by Mr. Pagliero and it appeared that the field splices comply with the contract documents.

The QAI observed the welder, Hua Qiang Hwang ID-2930, performed the CJP groove welding on the "A" face of the longitudinal stiffener field splice identified as WN: 7E-8E-A-LS1 and LS2. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and the WPS was also utilized by the QC inspector John Pagliero as a reference to monitor the welding and to verify the welding parameters. The amperage was recorded as 122 amps and the minimum preheat of 100 degrees Celsius

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and the maximum interpass temperature of 230 degrees Celsius was verified. The preheat temperature was maintained utilizing the heat induction process. The CJP welding of the "A" face was completed during this shift.

The welding of the longitudinal stiffener field splices was performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical. The welder utilized a slag hammer, pneumatic air gun with an attached chisel and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. The CJP welding was completed during this shift.

B). Ventilation Access Hole, Longitudinal Stiffener

The QAI observed the welder Xiao Jian Wan ID-9677 perform the welding of the Complete Joint Penetration (CJP) groove joint identified as 6E-PP37.5-E2-East on the "A" deck of the Orthotropic Box Girder (OBG) E6. The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012, Rev. 0 which was also used by the QC inspector John Pagliero as a reference to monitor and to verify the welding parameters which were observed and verified by the QAI as 124 amps. The welding was performed in the vertical (3G) position with the work placed in an approximate vertical plane with the groove approximately vertical with the weld progression up utilizing the 3.2 mm electrode. The groove joint appeared to comply with the AWS joint designation identified as B-U2a and the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The preheat temperature was maintained utilizing the heat induction process. Prior to the welding the QC inspector inspected the fit-up of the longitudinal splices identified as WN: 6E-PP37.5-E2-East and West. At the conclusion of the QC inspection no issues were noted by the QC inspector and the QAI concurs with the QC inspector's assessment.

C). Field Splice W7/W8

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) W7-W8-E1. The Complete Joint Penetration (CJP) welding was performed by welding personnel Song Tao Huang, ID-3794 utilizing the WPS ABF-D15-3040B, Rev. 1. The WPS was also used by the QC inspector William Sherwood as a reference to monitor the welding and to verify the DC welding parameters which were noted and recorded by the QC as follows: 260 amps, 23.3 volts and 255 mm/m. The welding was performed in vertical position (3G) at approximate incline of 22 degrees. The QC inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. Later during the shift the QAI observed, at random intervals, the QC inspector monitoring the in process welding, the surface temperatures and verifying the welding parameters. The CJP welding was not completed during this shift.

D). Field Splice W8/W9

The QAI observed the QC inspector Bonifacio Daquinag perform an assembly fit-up of the bottom plate field splice identified as WN: W8-W9-D1 and D2. At the conclusion of the fit-up inspection QC inspector noted a 4 mm planar misalignment at the D1 segment located at the Y coordinate identified as 0 mm with a measured length

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of 390 mm. The QC inspector informed the QAI that documentation will be generated and submitted for review.

E). Pipe Supports

F.W. Spencer personnel continued the layout locations on the column embeds for the Domestic and Reclaim Water pipe support System. There was no welding performed during this shift.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW welding process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs below illustrate the work observed during this scheduled shift.



Summary of Conversations:

There were general conversations with Quality Control Inspector Bonifacio Daquinag, Jr. at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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Inspected By: Reyes,Danny

Quality Assurance Inspector

Reviewed By: Levell,Bill

QA Reviewer